

## ABSTRACT OF THE DISCLOSURE

A system and method for generating pixels for a display device. The system may include a sample buffer for storing a plurality samples in a memory, a sample cache for  
5 caching recently accessed samples, and a sample filter unit for filtering one or more samples to generate a pixel. The generated pixels may then be stored in a frame buffer or provided to a display device. The method operates to take advantage of the common samples shared by neighboring pixels in both the x and y directions for reduced sample  
10 buffer accesses and improved performance. The method involves reading samples from the memory that correspond to pixels in a plurality of neighboring scan lines, and possibly also to multiple pixels in each of these scan lines. The samples may be stored in a cache memory and then accessed from the cache memory for filtering. The method maximizes use of the common samples shared by neighboring pixels in both the x and y  
15 directions.